

**SCOPE OF WORK**  
**AIRPORT LAYOUT PLAN SET and ALP NARRATIVE REPORT STUDY**

**CASHMERE-DRYDEN AIRPORT**  
**CLE ELUM MUNICIPAL AIRPORT**  
**DOROTHY SCOTT AIRPORT**  
**GRAND COULEE DAM AIRPORT**  
**GROVE FIELD AIRPORT**  
**OCEAN SHORES MUNICIPAL AIRPORT**  
**OMAK MUNICIPAL AIRPORT**  
**ODESSA MUNICIPAL AIRPORT**  
**ROSALIA MUNICIPAL AIRPORT**

The airports listed above will be completing an ALP Update with Narrative Report. This update and report project will provide the airport with revised ALP drawings and a Capital Improvement Program (CIP) that will provide the airport with a method and proposed schedule for correcting identified airport design deficiencies. It is the intent of this study to update existing drawings and provide a review of existing and long range needs of the airport. The ALP project will utilize the 2003 Washington System Plan Inventory Update data to augment data needs for the project. In general, the project will address and/or update the basic tasks and work elements as outlined in FAA Advisory Circulars 150/5070-6A, Airport Master Plans and 150/5300-13 changes 1 through 6, Airport Design, Appendix 7, Airport Layout Components and Preparation. The project will also be completed in general conformance with the FAA-ANM Airport Layout Plan Checklists dated April 1997 and the Airport Layout Plan Narrative. These include:

An inventory of existing Facilities at the airport:

- Forecasts of future aviation demand levels utilizing projections from the *Washington State Department of Transportation (WSDOT) Aviation Division's Washington State Aviation System Plan (WSASP)*, *FAA General Aviation Forecasts*, and one other published growth rate such as *population growth rate for Washington State*.
- A determination of new Facilities required, and/or expansion of existing facilities that will be required to accommodate the projected activity;
- Any existing or recommended facilities that do not meet FAA design criteria will be identified. Justification for a Modification to Standard, if there is no other alternative, will be provided;
- A Capital Improvement Program that prioritizes and stages the proposed development over 5, 10, and 20-year planning horizons will be provided; and
- Preparation of an updated ALP drawing set utilizing Computer Aided Design/Drafting (CADD) equipment.

Completion of the work elements should result in:

1. A schedule of airport improvements correlated with an identified specific volume of activity, which would mandate action to accomplish the needed improvement.
2. A realistic and workable Capital Improvement Program that identifies items necessary to maintain/expand airport Facilities.

3. Current ALP drawings that graphically depict existing conditions at the airport as well as proposed capital improvements.

## **ELEMENT 1 - STUDY INITIATION**

### **Task 1.1 - Refine Scope of Work, Budget and Schedule**

Consultant will develop a detailed scope of work, budget, and schedule to be made a part of the project contract fee negotiations. A detailed task-by-task itemization of the project budget and schedule will be provided.

*Product. The final scope of work, which will be used to obtain an independent cost estimate for the project for use in contract negotiations. A breakdown of project costs for each element and task will be provided*

### **Task 1.2. Coordination and Control**

Consultant will assist the airport sponsor in identifying agencies and individuals that need to be contacted and informed of the study process and will provide background and technical information. The WSDOT Aviation Division will assist the Airport Sponsor in establishing an advisory committee to provide continual input and review to the study process. Involved parties may include a member of the Airport Advisory Board, the FAA, the WSDOT Aviation Division, City/County representatives, airport users, and residents of the community. The Sponsor will coordinate meetings of the Advisory Board and will provide facilities for such meetings. The consultant will assure that meetings meet the guidelines of the FAA and the WSDOT Aviation Division. Graphic displays and pertinent handout material necessary to describe the evaluations and findings of the interim submittals will be prepared. Attendance at public hearings or presentations to the general public will not be required.

WSDOT Aviation, as Sponsor for these Airport Planning Studies, will manage, through its consultant the administrative, grant and fiscal aspects of the project. Additional responsibilities include consultant/airport coordination, facilitation of meetings, timely product review and supply of existing plans, report and electronic files relating to each airport layout, land use, property ownership, approaches, pavement and facility conditions, and previous planning studies and current development desires.

The Consultant will be required to attend project meetings with the Sponsor and on the Sponsor's behalf with the airports and associated communities in the project scope.

One setup meeting with the Sponsor.

*Product: A channel of communication with agencies and individuals that should be involved during the Airport Layout Plan Set and ALP Narrative Report Study.*

## **ELEMENT 2 - INVENTORY EXISTING CONDITIONS**

### **Task 2.1 - Evaluate Existing Documents**

Consultant will evaluate all existing documents from previous planning studies and airport records, as provided by airport management, including data pertaining to based aircraft, historic aviation activity, construction programs, FAA Grants and financial information.

Existing data is available through the 2003 Inventory Update of the Washington State Aviation System Plan.

*Product: A summary of existing documents and previous planning efforts for input to future tasks of this study. Summaries of based aircraft by type, Airport Reference Code (ARC) and weight, and of historical aviation activity for the last 5-years.*

### **Task 2.2 - Obtain Aerial Photography**

Consultant will obtain aerial photography of the airport and the surrounding area for the purpose of planning evaluations. Photo based ALP drawings will not be required. The Consultant will not be required to provide scaled aerial photographs but will provide oblique or conventional photography.

*Product: Aerial photography for the airport.*

### **Task 2.3 - Inventory Airport Facilities**

Consultant will utilize the inventory data from the 2003 Inventory Update for the six airport facilities, including an examination of plans, construction drawings, lease documents, utility information and other relevant documents, as provided by airport management. An on-site inspection of major components of the airport will also be performed. The examination will include a determination of the facility's use, type, size, condition, and adequacy, and extent it meets or exceeds FAA standards. The facilities that will be inventoried and the data that will be provided include but are not limited to the following:

1. Airfield Pavements - pavement thickness, pavement markings and signage, strength and construction history of runway, taxiway and apron pavements. The Washington State Aviation System Plan Pavement Program for the airport will be utilized.
2. Airfield Lighting and Navigational Aids.
3. Fixed Base Operator (FBO) Services - hangar utilization, tie-downs, T-hangars and services provided.
4. Fuel Facilities - storage and issue locations, capacities and condition.
5. Airport Access Roads and Auto Parking - adequacy of existing auto parking and access to the airport will be examined.
6. Utility Systems - key components of utility systems including water, sewer, electric and telephone will be identified.
7. Perimeter Fencing - the adequacy of airport perimeter fencing and access to the airport operations area will be examined.
8. Airport Maintenance Equipment - airport maintenance and snow removal equipment will be identified.

*Product: Tabulated airport facilities inventory for input to later tasks.*

### **Task 2.4 - Socioeconomic Data**

Consultant will utilize data from the 2002 Forecast and Economic Impact Analysis factoring population, employment, and other socioeconomic data that are available for the airport. This information will be used to describe the existing airport service area.

*Product: Socioeconomic information for subsequent analysis and tasks.*

### **Task 2.5 - Land Use Controls**

Consultant will obtain land use documents, maps and regulations from the various County and City Planning and Zoning Departments to include existing zoning ordinances, subdivision regulations, building codes, easements, rights-of-way and other documents pertaining to land use management in the vicinity of the airports. The Land Use Plan drawing will be updated to illustrate revisions to the airfield configuration, aviation easements, airport influence area and potential impacts to land uses in the airport environs. Preparation of an Exhibit 'A' will be required only if airfield configuration is revised or new land acquisition proposed.

*Product: A tabulation of existing land use documents for input to later tasks. Anew Exhibit A (if required) with the final ALP drawing set.*

## **ELEMENT 3 - AVIATION FORECASTS**

### **Task 3.1 - Update Existing Forecasts**

Consultant will use the *WSDOT Aviation Division's Washington State Aviation System Plan*, the *FAA's General Aviation forecasts* and one other published growth rate forecast such as population growth as a baseline for a 20-year aviation activity forecast. Extensive forecast methods will not be required. However, the consultant's rationale of recommended forecasts will be clearly stated in the report. The consultant shall complete FAA forecast summary spreadsheet for the airport. The forecast spreadsheet may be found at the following web site: <http://apo.faa.gov/Contracts/AF1.DOC>, then click on "excel format." Forecasts will be submitted to the FAA for approval prior to proceeding with subsequent forecast-dependent tasks. The Spreadsheet, "Comparison to TAF" and "Forecast Summary" must be included in the forecast chapter.

Forecasts of aviation activity projected for the airport will be prepared in 5-year intervals for a 20-year planning period as follows:

1. Number of based aircraft, (in terms of ARC; and single engine, multi-engine piston, multi-engine turbine, business jets, helicopters.)
2. Number of annual general aviation operations, (in terms of military operations, And annual instrument approaches; itinerant and local operations; and VFR and IFR operations.)
3. Mix of local vs. itinerant general aviation operations, (in terms of approach category and design group and aircraft weight.)
4. Identification of the fleet mix of general aviation aircraft expected to be based at or use the airport during the planning period.
5. Identification of existing and future critical aircraft, in terms of aircraft and ARC.
6. Use base year of most current data available in TAF.

*Product: Preparation of general aviation fleet mix and operations forecasts in 5-year intervals for the 20 year planning period. Identify existing and future critical aircraft. The critical aircraft will be submitted for FAA approval prior to proceeding with subsequent related tasks.*

### **Task 3.2 - Demand/Capacity/Delay Analysis**

Consultant will compare the forecasts prepared in Task 3.1 to the overall airport demand, capacity and delay. The demand/delay/capacity analysis will be limited to the calculations relating to long-range planning. Methodologies outlined in Advisory Circular 150/5060-5 including changes 1 and 2, will be used, as well as the latest FAA Demand/Capacity Software included in the Airport Design program. Purpose is to provide perspective relative to current forecast use.

## **ELEMENT 4 - FACILITY REQUIREMENTS**

### **Task 4.1 - Identify New Airport Facility Requirements**

Based on information from other tasks, the consultant will prepare a preliminary list of new facility requirements. The determination of additional facilities will be based on maintenance of the existing airport, compliance with governmental regulations including environmental issues and facilities necessary to accommodate projected demand. Recommendations will result from an analysis of FAA design criteria, knowledge of conditions at the airport and the desires of the airport sponsor. New facilities may include the following:

1. Landing area requirements.
2. Approach area requirements.
3. General aviation needs.
4. Hangar and tie-down needs.
5. Lighting and navigational aids (includes runway, taxiway, PAPIs, REILS, Rotating Beacon, ILS and VOR).
6. Airport access roads.
7. Perimeter fencing/equipment. Recommendations for additional security measures will be provided.
8. Airport land.

Reference should be made to proposed airport reference code (ARC) and critical aircraft, which should be identified (if necessary, by approach category, by wingspan, and/or by weight, for different airport components). The critical aircraft must conduct at least 500 annual itinerant operations. A table listing all deviations from current FAA design standards pertaining to the recommended ARC will be provided in the report as well as on the ALP drawing, including proposed disposition of the deviations. Disposition would entail recommended development and/or recommended FAA approval of modifications to standards. Print-outs from the current version of the FAA *Airport Design* computer program for runway length requirements and dimensional design standards will be submitted to FAA and included as an appendix to the draft and final reports as appropriate. Declared Distances module from the *Airport Design* program will be provided at the time of the ALP preparation (Element 5).

Airport development alternatives will be graphically depicted.

New facility requirements will be prioritized, based on the forecasts prepared at the time of the study. Improvements will be correlated with a specific volume of activity or change in the level of service that will require construction of the recommended improvement.

*Product. Detailed description of all new facilities required to meet aviation demand through the year 2023.*

#### **Task 4.2 - Select Recommended Facility Requirements**

Using the "new" Facility Requirements identified by Task 4.1 alternatives will be evaluated on the basis of their efficiency in meeting the recommended requirement, estimated cost and ease of implementation, engineering difficulty, ability to comply with FAA airport design criteria, and environmental impacts.

*Product: Evaluation of Recommended Facility Requirements and identification of feasible projects and a priority of implementation.*

### **ELEMENT 5 - AIRPORT LAYOUT PLAN DRAWINGS**

The Airport Layout Plan (ALP) drawings will be created or revised to reflect existing and future land and facilities necessary for operation and development of the airport. All of the major development proposed in the Capital Improvement Program (CIP) will be shown on the ALP in schematic form. The current FAA Seattle Airports District Office ALP Checklist (which is attached to this Scope of Work) will be used, to prepare the ALP drawings for this project. A completed checklist will be submitted to the FAA along with the ALP drawings when they are submitted for coordination. All items on the FAA N.W. Mountain Region Checklist, dated 1997, form a part of this scope of work, unless otherwise approved.

#### **Task 5.1 - Update the Airport Layout Plan**

The ALP will be prepared to reflect updated physical features, wind data, location of airfield facilities (runway, taxiways, NAVAIDs) and existing terminal area development. Development of alternatives and ultimate airfield facilities will be based on short, intermediate, and long-range requirements which incorporate both airside and landside requirements. Appropriate wind rose data based on historical conditions will be annotated on the ALP (if available).

*Product: An updated ALP Drawing (CADD based) for the airport.*

#### **Task 5.2 - Update the Building Area Plan**

A terminal area plan and general aviation plan will be developed that reflects recommended development of future general aviation needs on the airport. This drawing may be combined with the Airport Layout Plan Drawing.

*Product: Updated building area plan projecting development of building areas at the airport, surface access, perimeter fencing, future T-hangar locations and future buildings.*

#### **Task 5.3 - Update the Airport Airspace Drawing FAR Part 77**

Utilizing the 2003 Inventory Update, the consultant will prepare an obstruction/approach zones, FAR Part 77 drawing. This drawing shows a plan view of all FAR Part 77 imaginary surfaces. If any obstructions exist, they will be listed, the amount of penetration determined and their proposed disposition will be identified. Fifty-foot contour intervals will be shown for all FAR Part 77 imaginary surfaces for full length of all approach surfaces. Field surveys to

accurately identify specific elevations or heights of obstructions are not a part of this study. USGS quadrangle maps will be utilized.

*Product: An obstruction/approach zone, FAR Part 77 drawing for the airport.*

#### **Task 5.4 - Update the Runway Protection Zone Approach Plan (RPZ) and Profile for Runway**

Drawings will be prepared that show the plan and profile of the Runway Protection Zones (RPZ) for Runway 02-20. Any obstructions within the RPZ will be identified and a recommended disposition will be provided. Aerial photography may be used to develop these drawings. This drawing may be combined with other drawings. Runway profiles will be taken from existing maps.

*Product: A Runway Protection Zone/Approach Plan and Profile drawing that shows the RPZ's for each runway at the airport.*

#### **Task 5.5 - Provide Full Approach Plan and Profile for Each Runway**

Drawings will be prepared that show the existing and full approach plan and profile for the approaches to each runway. Any obstructions within the approaches will be identified and a recommended disposition will be provided. Aerial photography may be used to develop these drawings. This drawing may be combined with other drawings. USGS maps will be utilized.

*Product: An Approach Plan and Profile drawing that shows the approaches for each runway at the airport.*

#### **Task 5.6 - Update the Existing Land Use Drawing**

A drawing will be prepared depicting existing and recommended land uses within the ultimate airport property boundary as well as land that is impacted by aircraft flight patterns.

*Product: A drawing that provides the Sponsor a plan for the airport as well as guidance for establishing appropriate zoning in the vicinity of the airport. This information will be utilized to provide the airport sponsors with recommendations regarding the update of existing zoning ordinances currently in-place on land around the airport.*

#### **Task 5.7 – Exhibit A**

**If required**, a drawing will be prepared depicting property ownership, and recommended airfield configuration and future land acquisition.

*Product: Exhibit A Property Map.*

### **ELEMENT 6 - FINANCIAL EVALUATION**

The purpose of this study element is to establish a financial implementation program to provide the airport development requirements necessary to meet the projected aviation activity demands.

#### **Task 6.1 - Capital Improvement Program**

The Consultant will prepare an airport Capital Improvement Program (CIP) which will include a detailed 5-year CIP with recommended phases of development, estimates of cost for each improvement and a program implementation plan. The CIP will include estimates of the amount of funding eligible from FAA grant-in-aid programs, as well as other funding sources. A 20-year CIP will also be prepared evaluating proposed future projects, their estimated cost and potential sources of funding. The first 5-year program will be listed numerically in sponsor-priority order.

*Product: An evaluation of airport expenses and revenues at 5-year intervals will be compared to the CIP in order to identify a balanced approach for executing the program.*

## **ELEMENT 7 - REPORTS AND DOCUMENTATION**

### **Task 7.1 - Interim Report**

To insure proper coordination of the planning effort and assure agreement between the consultant and the Sponsor, an Interim Report (Draft Phase I Report) containing the results of the inventory, forecast and facility requirements will be prepared prior to detailed development of the Airport Layout Plan Study project. The Airport Layout Plan Set and ALP Narrative Report Study will be presented in the narrative and graphic form at a meeting with the Sponsor. This report will form the basis for agreement and recommendations by the Sponsor and coordination with the FAA- Forecasts will be submitted to FAA prior to formulation of the Interim Report.

*Product: Ten (10) copies of the Airport Layout Plan Set and ALP Narrative Report Study update for the airport and ten (10) sets of "preliminary" ALP drawings will be provided.*

### **Task 7.2 - Final Report and ALP Drawing Set**

The Final Report and drawings for the Airport Layout Plan Set and ALP Narrative Report Study will be prepared for Sponsor acceptance and submittal to the FAA for coordination and approval.

*Product: Fifteen (15) copies of the "final" Airport Layout Plan set and ALP Narrative Report*

*Study reports, and ten (10) sets of full size 2 by 34 " ALP drawing sets of the airport.*



### **Task 7.3 – Summary of Products to FAA**

	<b><u>TASK</u></b>	<b><u>Number of Sets</u></b>
<i>Product:</i>	<i>Working Paper/Draft Chapters</i>	<i>1</i>
	<i>Draft Final Report</i>	<i>2 – (color copies are not needed)</i>
	<i>Draft ALP Print Sets &amp; FAA Checklist</i>	<i>2 – (color copy not needed checklist confirms work)</i>
	<i>Final Draft ALP Prints</i>	<i>6 – (FAA Airspace coordination)</i>
	<i>Final ALP Prints</i>	<i>2 – (Sponsor/FAA approval set color copies needed)</i>
	<i>Final ALP (mylars/sepia)</i>	<i>1</i>
	<i>CADD File (final ALP set)</i>	<i>1</i>

### **ELEMENT 8 - MISCELLANEOUS**

#### **Task 8.1 - Surveying, Elevations and Profiles**

Existing topographic maps will be used for developing all plans. Elevations of existing buildings will be surveyed only where needed to ensure compliance with FAR Part 77 height restrictions. Objects inside the RPZ and the Runway Object Free Area (OFA) will also be identified from existing maps and survey data. Extensive obstruction surveying will not be required. Profiles along runway centerlines and extended centerlines will be taken from existing construction documents.

Field surveying will not be required.

#### **Task 8.2 - Travel to Airport**

It is anticipated that trips to the airport will be required to complete the studies. Trips will be scheduled as follows:

1. To meet with the sponsor and become familiar with the airport and its' environment and set up preliminary meeting with Advisory Committee.
2. Inventory airport facilities.
3. Presentation of the interim report to include inventory, forecasts and facility requirements. An inventory and forecasts report will be submitted to the FAA prior to development of the facility requirements.
4. A presentation of the Preliminary Airport Layout Plan Set and ALP Narrative Report Study and Drawings.

#### **Task 8.3 - Environmental**

The environmental overview will identify specific impact categories or issues, which may require additional evaluation prior to future airport development. The process will include preliminary coordination with local, state and federal agencies that have legal responsibilities for the protection of specific impact categories. These include the major crosscutting environmental impact categories of threatened and endangered species, air quality, wetlands and cultural resources.

#### **Task 8.4 - Checklist**

The FAA Airport Layout Plan Checklist dated April 1997 and the Airport Layout Plan Narrative Report Checklist dated April 1997 shall be completed, as they are applicable to the airport.